

## PATENT ABSTRACTS OF JAPAN

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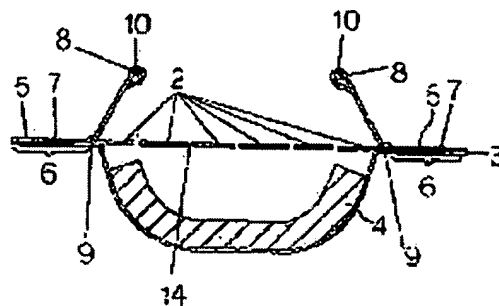
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## (54) DISPOSABLE DIAPER

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a disposable diaper which prevents leakage by enhancing its wearability under the crotches and fitness during exercise and which is used suitably.

**SOLUTION:** In a disposable diaper having a liquid-permeable top sheets 2, a liquid-impermeable back sheet 3, an absorber 4 arranged between the sheets, a plurality of side flaps 7 having leg-encircling elastic bodies extending outward from the transverse side edges of the absorber 4, and three-dimensional gathers arranged longitudinally along the side edges of the absorber on the side flaps 6, the top sheet 2 has a plurality of small slits formed therein and is joined to the back sheet 3 by elongating the top sheet 2 in a direction perpendicular to the small slits.



## LEGAL STATUS

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CLAIMS

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[Claim(s)]

[Claim 1] The top sheet of liquid permeability, the backseat of liquid impermeability, and the absorptivity body that consists of an absorber arranged among both [ these ] sheets, In the usage \*\*\*\* diaper which has the solid gathers arranged at the longitudinal direction along with the absorber side edge on the side flap which has the circumference elastic body of two or more feet which extended outside, and a side flap from the longitudinal direction edges on both sides of said absorber Said top sheet is a usage \*\*\*\* diaper characterized by forming two or more small slits in the longitudinal direction of a diaper, being extended crosswise [ diaper ], and being joined to the backseat of liquid impermeability.

[Claim 2] Said top sheet is a usage \*\*\*\* diaper [claim 3] according to claim 1 characterized by forming two or more small slits crosswise [ of a diaper ], being extended by the longitudinal direction of a diaper, and being joined to the backseat of liquid impermeability. The usage \*\*\*\* diaper according to claim 1 or 2 characterized by forming said top sheet for the material non-contracting [ expand and ] [claim

4] The usage \*\*\*\* diaper according to claim 1 or 2 characterized by forming said top sheet for the flexible material

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## DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] Using this invention, it excels in wearing nature and the fit nature at the time of movement in more detail about a \*\*\*\* diaper, and is related with the usage \*\*\*\* diaper which improved the leakage prevention effectiveness and which can be used comfortably.

[0002]

[Description of the Prior Art] In the usage \*\*\*\* diaper for processing excrement, such as urine and facilities, conventionally, while wearing nature's getting worse, being easy to produce the gap by the infantile activity according to the absorber of length from the crotch to the cuff being large and becoming easy to produce leakage, an exterior was not desirable, either. Moreover, when excrement was discharged above the rate of absorption of an absorber, or when that by which viscosity, such as facilities, cannot be absorbed highly easily was excreted, it might be said that cannot absorb an absorber, but there was no refuge place of excrement, and it was transmitted to a top sheet top, and leaked from the center section or back abdomen of a diaper.

[0003] Like [ in order to solve these points ] a publication in the real fairness No. 11681 [ one to ] official report, in order to carry out size enlargement of the arc-shaped cross section to a part for the crotch of a diaper as a whole, the usage \*\*\*\* diaper including the restricted means by the adhesion which holds two tucks on a top sheet is known. Moreover, like a publication in a \*\*\*\*\* No. 502439 [ seven to ] official report, in order to form free space between a top sheet and a backseat, the usage \*\*\*\* diaper which shortens a top sheet is known.

[0004] Moreover, the usage \*\*\*\* diaper which has at least one path which passes a sordes, and has the absorptivity core which intervened between the liquid permeability top sheet with the elastic liner which fixes to the backseat of non-liquid permeability [ marginal / at least / a part of ], or elastic ductility, and a liner or a top sheet and a non-liquid permeability backseat is known like a publication in JP,2-121662,A and a publication-number No. 202056 [ three to ] official report.

[0005] Moreover, like the publication to JP,6-7725,U, an absorber intervenes between a liquid permeability top sheet and a non-liquid permeability backseat, and the usage \*\*\*\* diaper which has the second top sheet of liquid permeability which has two puncturing which became independent by elasticity in every direction on the top sheet at the urinary organs and the regio analis is known.

[0006]

[Problem(s) to be Solved by the Invention] A diaper given in the above-mentioned real fairness No. 11681 [ one to ] official report or a \*\*\*\*\* No. 502439 [ seven to ] official report may not follow in footsteps of the body, when the top sheet is only shortened simply and needs to develop during wearing, but it may cause leakage. Moreover, since the top sheet of original magnitude is contracted, there are also few merits in a cost side.

[0007] Moreover, although a diaper given in a publication-number No. 121662 [ two to ] official report and a publication-number No. 202056 [ three to ] official report holds elasticity and a liner or the top sheet itself is excellent in wearing nature and fit nature, the elasticity more than a liner or top sheet stock is not expectable. Moreover, the path on the liner suitable for sordes passage or a top sheet has a large hole, and is a lifting and a cone about reversion of the water absorption polymer leakage or sordes from an absorber.

[0008] It was the elongation side, in view of this present condition, two or more small slits were formed in the top sheet, this was extended, puncturing structure was made, joining to the backseat of liquid impermeability raised the wearing nature of a diaper at the time of wearing, and it improved the fit nature at the time of movement by extensibility, and while preventing the leakage of urine, facilities, etc., it resulted in the conclusion that effectiveness is to be used comfortably.

[0009] Moreover, in order to extend and use a top sheet small originally, it resulted in the conclusion that a manufacturing cost becomes cheap.

[0010] The purpose of this invention improves the trouble which the above-mentioned conventional usage \*\*\*\* diaper has, raises the wearing nature in length from the crotch to the cuff, improves the fit nature at the time of movement by extensibility, it is comfortably used while it prevents leakage, and it is to offer the usage \*\*\*\* diaper which has effectiveness in preventing the leakage of facilities etc.

[0011]

[Means for Solving the Problem] The top sheet of liquid permeability [ this invention ], and the backseat of liquid impermeability, The side flap which has the absorptivity body which consists of an absorber arranged among both [ these ] sheets, and the circumference elastic body of two or more feet which extended outside from the longitudinal direction edges on both sides of said absorber, In the usage \*\*\*\* diaper which has the solid gathers arranged along with the absorber side edge on a side flap at the longitudinal direction said top sheet Two or more small slits are formed in the longitudinal direction of a diaper, and it consists in the usage \*\*\*\* diaper characterized by being extended crosswise [ of a diaper ] and joined to the backseat of liquid impermeability.

[0012] Moreover, this invention consists in the usage \*\*\*\* diaper characterized by forming said top sheet for the material non-contracting [ expand and ].

[0013] Moreover, this invention consists in the usage \*\*\*\* diaper characterized by forming said top sheet for the flexible material.

[0014] Moreover, this invention consists in the usage \*\*\*\* diaper characterized by forming two or more small slits crosswise [ of a diaper ], and for said top sheet being extended by the longitudinal direction of a diaper, and joining it to the backseat of liquid impermeability.

[0015]

[Embodiment of the Invention] The usage \*\*\*\* diaper of this invention by extending this in the direction of a small slit and a right angle, and joining to a backseat, after putting two or more small slits into a top sheet Since an absorber curves inside by the shrinkage force of a top sheet at the time of diaper wearing. The wearing nature of the diaper in length from the crotch to the cuff improves, and the fit nature at the time of movement improves by extensibility. The leakage of facilities etc. can be prevented by passing facilities etc. on an absorber from the hole which can use it comfortably while preventing leakage, and remains partially on a top sheet further and where the slit was extended. Moreover, since a top sheet small originally is extended and used, a manufacturing cost can be made cheap.

[0016] TOPPUSHI-TO of liquid permeability of the non-elasticity used in this invention may be a hydrophilic property or a hydrophobic nonwoven fabric, textile fabrics, etc., the bicomponent fiber which consists of two or more components, such as polypropylene, polyethylene, polyester, nylon or polyester, polypropylene, polyethylene, and nylon, is sufficient as the configuration fiber, and especially, although the bicomponent fiber of polyester/polyester, polyester / polyethylene, and polypropylene/polyethylene is desirable from a strong field, especially a limit is not received.

[0017] Although an elastomer film, a polyurethane film, elastomer form, polyurethane foam, natural-rubber-silk rubber, urethane yarn rubber, Taira rubber, a heat shrink nature film, etc. can be used, the top sheet of liquid permeability of the elasticity used in this invention will not be limited especially if it is an elastic material. Moreover, the elastic body of the shape of the shape of yarn, such as nature, synthetic rubber, and urethane, and a string and a flat tip configuration may be arranged in the top sheet of liquid permeability of said non-elasticity, and you may fix to a top sheet with adhesives. The elastic body arranged at a top sheet is arranged in the state of expanding at a top sheet, respectively, and adhesion immobilization is carried out with hot melt adhesive. As the adhesion fixed approach, what is necessary is just independent or the approaches that it does not separate even if it gets wet in urine etc. although there is an approach by such combination, such as an approach by hot melt adhesive, a heat-sealing joining method, and an ultrasonic welding method.

[0018] A top sheet does not need to consist of single sheets, and or it changes a sheet with an absorber top face and a flank flap, it may consist of sheets of two or more sheets, such as changing by the side which touches the skin an absorber top-face side. Moreover, in case a top sheet is constituted from a sheet of two or more sheets, although each sheet may use another material, the same material is sufficient as it.

[0019] The liquid impermeable backseat used in this invention consists of the material which sticks a nonwoven fabric, textile fabrics, etc. on liquid impermeable films, such as polyethylene, and the film of liquid impermeability and a nonwoven fabric with leakproofness, textile fabrics, etc., there is especially no limit and the moisture in an absorber should not just ooze out on the diaper outside. Moreover, in order to give a blanket-like appearance, embossing processing may be carried out at the shape of a pattern, or lusterless finishing may be carried out further. Moreover, when using a film, though it is impermeability, it is still more desirable from using the well-known breathable film which makes only a steam penetrate, and preventing MURE.

[0020] The absorber used in this invention consists of a curdy pulp and high absorptivity polymer (SAP), a hydrophilic sheet, etc., and is not restricted especially. The absorber used in this invention is made from the well-known absorptivity ingredient with which the absorptivity goods of a conventional usage \*\*\*\* diaper and conventional others are usually used. That is, it is formed from the monolayer or the multilayer mat which consists of absorptivity fiber, such as curdy pulp and rayon, and is further covered with the hydrophilic sheet, and SAP is arranged by homogeneity into each mat and arranged in the shape of a layer between mixing or each mat. Moreover, after the absorber mixed by homogeneity in SAP mixes 3 - 60% of the weight of heat welding fiber to curdy pulp, thermocompression bonding may be carried out or only SAP may be covered with the hydrophilic sheet.

[0021] It is a thing with a fiber length of 5mm or less obtained as curdy pulp by \*\*\*\*(ing) a chemical pulp sheet, a recycled pulp sheet, a mechanical pulp sheet, or a chemical machinery pulp sheet with a grinder. As a pulp raw material, not only a needle-leaf tree but a broad-leaved tree, straw, a bamboo, a bagasse, etc. are applied. Although the amount of this pulp used differs by whether it uses independently, or two or more laminatings are carried out and it uses with the target absorber, or other absorbers are used together, generally it is made into 50 - 400 g/m<sup>2</sup>.

[0022] As SAP, a starch system, a cellulose system, and a synthetic polymer system are mentioned. Namely, the saponification object of a starch-acrylic-acid (salt) graft copolymer and a starch-ethyl-acrylate graft copolymer, The saponification object of a starch-methyl-methacrylate graft copolymer, the saponification object of a starch-acrylonitrile graft copolymer, The saponification object of a starch-acrylamide graft copolymer, starch - The saponification object of an acrylonitrile-2-acrylamide-2-methyl propane sulfonic-acid graft copolymer, They are the polyethylene oxide over which the bridge was constructed with the acrylic-acid (salt) polymer and the acrylic acid, the bridge formation object of sodium carboxymethylcellulose, the bridge formation object of a polyvinyl alcohol-maleic-anhydride reactant, etc.

[0023] The urine, the body fluid, and water of 20 times or more of a self-weight are absorbed, and the thing of a sodium polyacrylate system is [ among these ] the most suitable from the point of absorptivity ability. the curdy pulp 100 weight section which dried the amount of distribution of SAP -- receiving -- the 10 - 500 weight section -- it is the 15 - 300 weight section preferably, and SAP of this amount is substantially distributed over curdy pulp at homogeneity. When SAP absorbed and swells, it is rare for a mutual interference to be able to minimize the particle, to contact continuously, and to form a permeability barrier, and it penetrates and absorbs urine and body fluid in the direction of a three dimension.

[0024] As a hydrophilic sheet, tissue, water absorption paper, a hydrophilic nonwoven fabric, etc. should just be the sheets of a hydrophilic property, for example. You may be embossing of a pattern [ that the consistencies of an absorber differ partially and urine and body fluid are led in a lengthwise direction and the direction of slant as the compression approach of an absorber with the roll whose peripheral surface you may have the shape of a field which continues so that the consistency of an absorber may become equal substantially over the whole with a roll with a smooth peripheral surface etc., and is concave convex ] array. In embossing, a compression zone and the incompressible section may be continuation and discontinuous any. The configuration of an absorber can be chosen as a rectangle, a sandglass mold, a T character mold, and freedom, and any of the well-known configuration for which the absorptivity goods of a conventional usage \*\*\*\* diaper and conventional others are usually used are sufficient as it, and it is not limited especially.

[0025] Moreover, a diffusion layer may be prepared at least in the part on an absorber. It becomes possible to prevent leakage of urine, body fluid, etc., without reducing the rate of absorption of urine, body fluid, etc. by establishing a diffusion layer, even when the space under a top sheet is not fully prepared by a wearing person's posture etc. Diffusion layers are the nonwoven fabric of hydrophilic liquid permeability, textile fabrics, porous plastics, curdy pulp, etc., polypropylene, polyethylene, polyester, rayon, pulp, or these bicomponent fibers are sufficient as the constituent, and it does not receive especially a limit. A diffusion layer is arranged between a top sheet and an absorber, and adhesion immobilization is carried out with adhesives etc. at an absorber.

[0026] The solid gathers used in this invention are formed with a sheet. The sheet of solid gathers may be formed by the top sheet on the top face of an absorber, and the sideseat and backseat on the top face of a side flap. Furthermore, the sheet of solid gathers does not need to consist of single sheets, and the lamination of each [ these ] sheet is sufficient as it. Moreover, space may be formed in solid gathers in the case of the lamination of two or more sheets. the material of a solid gathers sheet -- a hydrophilic property or a hydrophobic nonwoven fabric, textile fabrics, porous plastic film, etc. -- or They are the films of liquid impermeability, and such lamination. The configuration fiber of textile fabrics and a nonwoven fabric Polypropylene, polyethylene, polyester, nylon The bicomponent fiber which consists of two or more components, such as polyester, polypropylene, polyethylene, and nylon, is sufficient. Or especially Especially a limit is not received although the bicomponent fiber of polyester/polyester, polyester / polyethylene, and polypropylene/polyethylene is desirable from a strong field. As for the sheet used for formation of solid gathers, it is desirable that it is leakproofness, for example, a water-repellent nonwoven fabric, the nonwoven fabric formed for super-thin fiber, its lamination nonwoven fabric with a film, etc. are desirable.

Displeasure is not given to a wearer, without being steamed during diaper wear, since it has permeability if a flap sheet is constituted from a liquid permeability sheet. Moreover, if a flap sheet is constituted from a liquid impermeable sheet, it will become effective to leakage.

[0027] Furthermore, according to the purpose of use, an elastic body may be installed in the sheet of solid gathers. If an elastic body is installed, a wearer's fit nature will also become high and the flattery nature to a motion of a wearer will also increase.

[0028] Although an elastomer film, a polyurethane film, elastomer form, polyurethane foam, natural-rubber-silk rubber, urethane yarn rubber, Taira rubber, a heat shrink nature film, etc. are used, the elastic body arranged in the free edge of solid gathers will not be limited especially if it is an elastic material. Moreover, these elastic bodies are arranged in the state of expanding at a solid gathers part, respectively, and adhesion immobilization is carried out with hot melt adhesive. As the adhesion fixed approach, what is necessary is just independent or the approaches that it does not separate even if it gets wet in urine etc. although there is an approach by such combination, such as an approach by hot melt adhesive, a heat-sealing joining method, and an ultrasonic welding method.

[0029] The elastic body of solid gathers is not especially restricted that what is necessary is to just be arranged in the flank of a free edge, or its close relationship, although one is arranged in the flank of the free edge of solid gathers.

[0030] In the length-from-the-crotch-to-the-cuff section, the height of solid gathers is 10mm or more 100mm or less, and is 20mm or more 60mm or less preferably. On the other hand, the height of the weir of the solid gathers in the back and an antinode flank is 0mm or more 80mm or less, and is 0mm or more 50mm or less preferably.

[0031] It is more desirable not to arrange the elastic body in the longitudinal direction both ends of the free edge of solid gathers.

Moreover, since an abdomen and the regions of back of the longitudinal direction both ends of a free edge are direct this slack parts, solid gathers will be extremely inferior in a feeling of wearing, when it has not stood up, and it is [ direction ] desirable and solid gathers stand up in an abdomen and a regions-of-back field. Furthermore, the whole solid gathers may be formed with the sheet of a duplex that the width of face of the clinch of the side edge section of the flap sheet which forms the free edge should just be the width of face which can wrap the elastic body installed in inside. If the whole solid gathers are formed with the sheet of a duplex, leakproofness improves and it is still more effective to leakage.

[0032] Moreover, according to the shrinkage force of the elastic body with which the longitudinal direction central region which hits the length-from-the-crotch-to-the-cuff field of solid gathers was attached in the free edge, since solid gathers stand up up with a part for both the edges of an absorber from the end face section, they can form the pocket structure where capacity is large, and can raise greatest effectiveness to leakage prevention rather than it pushes down solid gathers inside simply. Furthermore, in order to raise the leakage prevention effectiveness, although it crosses all over a longitudinal direction and pair arrangement is carried out along with the absorber side edge section, solid gathers do not necessarily need to be pairs and can also be arranged two or more sets.

[0033] The side flap used in this invention is formed from the backseat which extended outside from the edges on both sides of an absorber, and the sideseat by which the laminating was carried out on this, and the circumference elastic member of a foot is further arranged in the state of expanding between the backseat and the sideseat by circumference opening of a foot of a side flap. Although the circumference elastic body of a foot is arranged in a length-from-the-crotch-to-the-cuff part even if there are few diapers, in order for wearers, such as improvement in fit nature and leakage prevention, to wear it comfortably at this time, gathers may exist in the circumference of a foot at the perimeter. Moreover, although it consists of several lines which are not [ that the circumference elastic body of a foot is parallel to mutual, or ] parallel or can arrange a straight line or in the shape of a curve, in order to make fit nature with a crotch good, it is desirable to curve and arrange along with circumference opening of a foot.

[0034] The circumference elastic body of a foot of a side flap which sets spacing to a longitudinal direction in a central region mostly, and is prolonged to a lengthwise direction is attached in the bottom of expanding to those die-length directions between the top sheet or the sideseat, and the backseat. Although the expanding stress of the circumference elastic body of a foot arranged at the side flap has the same expanding stress substantially, the range of it is 0.9N-2.5N more preferably 0.4Ns - 3.0 Ns. When expanding stress is less than 0.4Ns, according to a motion of a wearer, it will be hard coming to fit a crotch, a clearance will be made, and urine and facilities will leak and come out. On the contrary, if expanding stress becomes large exceeding 3.0 Ns, although the effectiveness as an anti-leak barrier becomes high, in order to bind a wearer's thigh tight too much strongly, it gives a wearer displeasure and is not desirable.

[0035] Moreover, you may distinguish the expanding stress of the circumference elastic body of a foot between strength by the outside and the inside. By strengthening gradually reinforcement of the circumference elastic body of a foot located outside the reinforcement of the circumference elastic body of a foot located inside, solid gathers become easy to start, the weir of solid gathers becomes high, the capacity of the pocket structure which solid gathers form as a result becomes large, and the leakage prevention effectiveness improves. As for the expanding stress in this case, it is desirable to carry out strength of the expanding stress of the circumference elastic body of a foot which the range of is 0.8N-3.0N, and is located inside the standing-up line of solid gathers in the expanding stress of the circumference elastic body of a foot located outside the standing-up line of solid gathers in 0.4N-2.5N.

[0036] Moreover, the direction inside an outside may be made large for spacing of the circumference elastic body of a foot. By making large spacing of the circumference elastic body of a foot narrow and located [ spacing of the circumference elastic body of a foot located outside ] inside, solid gathers become easy to stand up according to the shrinkage force of the circumference elastic body of a foot, the fit nature to a wearer's skin becomes good, and the leakage prevention effectiveness improves. In this case, spacing of the circumference elastic body of a foot is [ 5 times / 1.1 times to ] 3 times [ 1.5 times to ] larger [ the inside spacing ] more preferably to outside spacing. When spacing of the circumference elastic body of a foot is the same, although the effectiveness as an anti-leak barrier becomes high, in order to bind a wearer's thigh tight too much strongly, it gives a wearer displeasure and is not desirable. On the contrary, if spacing inside a standing-up line becomes large exceeding 5 times, according to a motion of a wearer, it will be hard coming to fit a crotch, a clearance will

be made, and urine and facilities will leak and come out.

[0037] Although sideseats may be a top sheet and allotropic material and may be different materials, it is still more desirable that it is water repellence as urine etc. does not ooze out from circumference opening of a foot.

[0038] The laminating lamination of a backseat and a sideseat is pasted up with hot melt adhesive. If a bead, a spiral, a melt blow, etc. are the approaches generally used, as for the method of application of hot melt adhesive, it is desirable for it to be few in the possible range, and to apply the amount of the adhesives used to homogeneity all over a spreading side anything, in order for the aesthetic property of the sheet after lessening effect on the elasticity by adhesives and sticking to be good, although it is good.

[0039] The circumference elastic body of a foot of a side flap is used according to an installation location in the thing of the shape of the shape of yarn, such as nature, synthetic rubber, and urethane, and a string, and a flat tip configuration. Arrangement of the circumference elastic body of a foot is fixed to a sheet by adhesives. As the adhesion approach, joining by water-soluble pastes, such as hot melt, a starch system, or CMC (carboxymethyl cellulose), fluid high adhesives or heat, a supersonic wave, etc. is sufficient.

[0040] The leakage prevention effectiveness can be made high by devising the expanding stress of the circumference elastic body of a foot of a side flap, and the elastic body attached in the free edge of solid gathers. Preferably, expanding stress of the circumference elastic body of a foot of a side flap is made stronger than the expanding stress of the elastic body attached in the free edge of solid gathers.

[0041]

[Example] Hereafter, although a drawing explains this invention to a detail more, this invention is not limited to these. What is shown in drawing 1 is the flat-surface development view of the usage \*\*\*\* diaper with which the slit 14 was formed in the top sheet 2 at the diaper longitudinal direction, and the top sheet was extended and arranged crosswise [ of a diaper ].

[0042] The slit length of the top sheet 2 has 0.1cm or more 3.5 desirablecm or less, and 0.5cm or more its 2cm or less is more desirable. Sufficient expanding cannot be expected when slit length is less than 0.1cm, and it extends. Conversely, when slit length becomes longer than 3.5cm, there is a possibility of fracturing by the enlargement at the time of manufacture.

[0043] Moreover, 90% or less 10% or more of the area of the part in which a slit 14 exists on the top sheet 2 is desirable to a whole top sheet surface product, and is more desirable. [ 60% or less 30% or more of ] Sufficient expanding cannot be expected when a slit aspect product is less than 10%, and it extends. Conversely, if a slit aspect product becomes larger than 90%, there will be a possibility of fracturing by the enlargement at the time of manufacture, and the sordes reversion from a diaper will also increase.

[0044] It uses and drawing 2 is the sectional view in the I-I' line of a \*\*\*\* diaper shown by drawing 1. In this case, a slit 14 is formed in the top sheet 2 at a diaper longitudinal direction, in the condition of it having been extended crosswise [ of a diaper ] and having been arranged in it, it does not contract, but a slit can open the top sheet 2, and the hole is opening it. In drawing 2 The top sheet 2 of liquid permeability [ diaper / 1 / usage \*\*\*\* ], and the backseat 3 of liquid impermeability, It has the sideseat 5 arranged along the wrap top sheet 2 top in the absorber 4 from the side edge of the backseat 3 which extends outside from the edges on both sides of the absorber 4 arranged among both [ these ] sheets, and an absorber 4. Backseat 3 part which furthermore extends from the edges on both sides of an absorber 4, and sideseat 5 part located on this are joined, and the side flap 6 is formed. In the length-from-the-crotch-to-the-cuff field of a diaper 1 The circumference elastic body 7 of two or more feet is arranged between the sideseats 5 and backseats 3 which form the side flap 6.

[0045] Moreover, the part located on the top sheet 2 of a sideseat 5 In the part which has pasted up with the top sheet 2 along with the longitudinal direction overall length of a diaper 1, and is further located on an absorber 4 in the edges-on-both-sides section of the top sheet 2 It was bent so that the side edge section might wrap in an elastic body 8, and longitudinal direction both ends have pasted up on the absorber 4 through a part for jointing 12 (refer to drawing 1). By this A part for jointing in the edges-on-both-sides section of the top sheet 2 is made into the standing-up line 9, and the solid gathers 11 which stand up up are formed by using as a free edge 10 the side edge which has arranged the elastic body 8 on an absorber 4.

[0046] It uses and drawing 3 is the sectional view in the I-I' line in the wearing condition of a \*\*\*\* diaper shown by drawing 1. In drawing 3, the top sheet 2 is contracted, an absorber curves inside in the cross direction, and space is formed between the top sheet and the absorber.

[0047] Drawing 4 is the flat-surface development view of the usage \*\*\*\* diaper with which it used, and it is an example different from a \*\*\*\* diaper, the slit 14 was formed crosswise [ of a diaper ] at the top sheet 2, and the top sheet 2 was extended and arranged in the longitudinal direction of a diaper shown by drawing 1.

[0048] It uses and drawing 5 is the sectional view in the Z-Z' line of a \*\*\*\* diaper shown by drawing 4. In this case, a slit 14 is formed crosswise [ of a diaper ] at the top sheet 2, in the condition of it having been extended by the diaper longitudinal direction and having been arranged in it, it does not contract, but a slit can open the top sheet 2, and the hole is opening it.

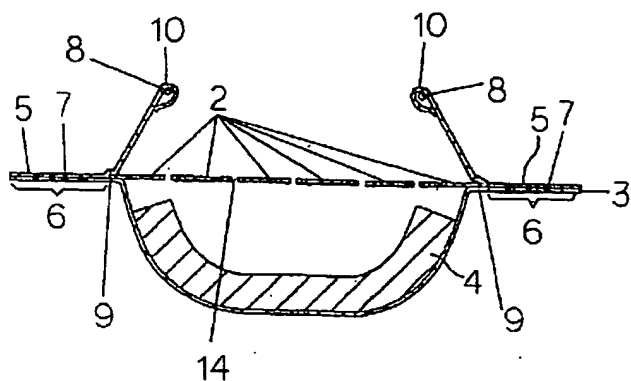
[0049] It uses and drawing 6 is the sectional view in the Z-Z' line in the wearing condition of a \*\*\*\* diaper shown by drawing 4. In drawing 6, the top sheet 2 is contracted, an absorber curves inside in a longitudinal direction, and space is formed between the top sheet and the absorber.

[0050] As explained above, the usage \*\*\*\* diaper of this invention Since an absorber curves inside by the shrinkage force of a top sheet at the time of diaper wearing by extending this in the direction of a small slit and a right angle, and joining to a backseat after putting two or more small slits into a top sheet, The wearing nature of the diaper in length from the crotch to the cuff improves, and the fit nature at the time of movement improves by extensibility. The leakage of facilities etc. is prevented by passing facilities etc. to up to an absorber from the hole which can use it comfortably while preventing leakage, and remains partially on a top sheet further and with which the slit was extended.

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[Translation done.]

Drawing selection Representative drawing

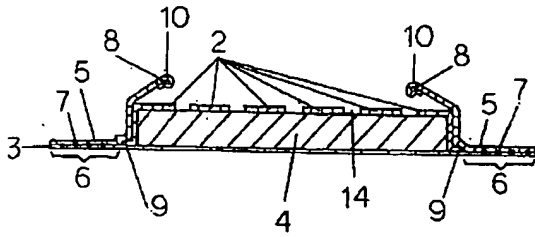


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Drawing selection **drawing 2**

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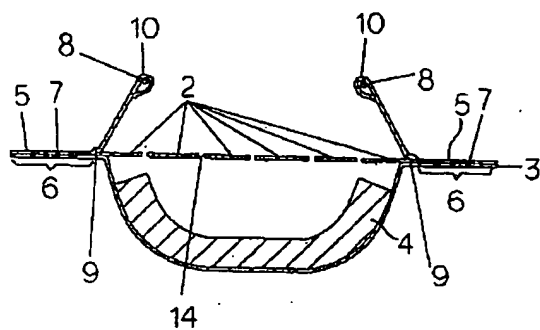
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Drawing selection **drawing 3**

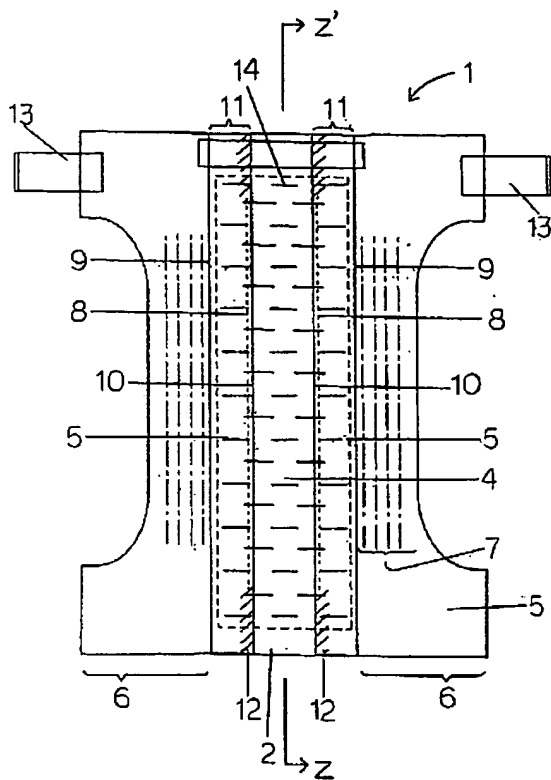
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[Translation done.]

**BEST AVAILABLE COPY**

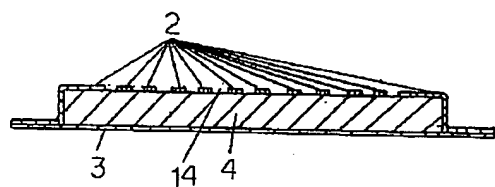


[Translation done.]

**BEST AVAILABLE COPY**

Drawing selection drawing 5

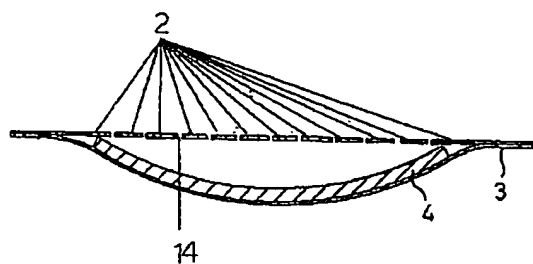
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[Translation done.]

**BEST AVAILABLE COPY**

Drawing selection drawing 6



[Translation done.]

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